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10/014,760

12/11/2001

Kurt J. Richter

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08/15/2006

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EXAMINER

TAYLOR, BARRY W

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/014,760 | <b>Applicant(s)</b><br>RICHTER ET AL. |  |
|                              | <b>Examiner</b><br>Barry W. Taylor   | <b>Art Unit</b><br>2617               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 5, 8, 11, 15-18, 26, 34, 39, 42, 46 and 48 are rejected under 35

U.S.C. 102(e) as being anticipated by Bertonis et al (6,625,222 hereinafter Bertonis).

Regarding claim 1. Bertonis teaches a data channel tuner (title, abstract, figure 8) comprising:

an input interface for accepting said data channel, wherein said input interface further accepts signal energy at a frequency associated with an image of said data channel as mixed by said tuner (see figure 8 wherein LNA generates signal plus noise before passing to an adaptive Image Reject Mixer 105); and

an image reject mixer coupled to said input interface and providing frequency conversion of said data channel (see Adaptive Image Reject Mixer 105 figure 8).

Regarding claim 5. Bertonis teaches a filter network coupled to the image reject mixer (see filters 93, 94, 97, 99 and 104 in figure 8).

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Regarding claim 8. Bertonis teaches at least one amplifier (see 81 figure 8) disposed in a signal path between a filter (99 figure 8) of said filter network and said image reject mixer (105 figure 8).

Regarding claims 11, 42 and 48. Bertonis teaches that Image and desired signals are closely (i.e. 10%) spaced (col. 2 lines 5-8).

Regarding claims 15 and 26. Bertonis teaches data channel comprises a forward data channel and image frequency signal energy comprises a forward access terminal signal (see col. 4 lines 25-67 wherein standard cable modem used).

Regarding claim 16. Bertonis teaches digital data stream (see DOCSIS standards for cable modem---col. 2 line 64).

Regarding claim 17. Bertonis teaches a system for providing tuning of a particular signal in a signal data stream including additional signal energy at an image frequency of said particular signal as frequency converted by said system (title, abstract, see figure 8 wherein LNA generates signal plus noise before passing to an adaptive Image Reject Mixer 105), comprising:

an image reject mixer providing frequency conversion of said particular signal and rejection of said additional signal energy, wherein a signal energy of said particular signal is substantially less than said additional energy (see Adaptive Image Reject Mixer 105 figure 8 used to convert a particular signal and reject image (i.e. additional signal energy) wherein the signal of interest and image are closely spaced---col. 2 lines 5-8).

Regarding claim 18. Bertonis teaches that Image and desired signals are closely (i.e. 10%) spaced (col. 2 lines 5-8).

Method claim 34 is rejected for the same reasons as apparatus claim 1 and system claim 17 since the recited apparatus and system would perform the claimed method steps.

Method claim 39 is rejected for the same reasons as apparatus claim 1 and system claim 17 since the recited apparatus and system would perform the claimed method steps.

Method claim 46 is rejected for the same reasons as apparatus claim 1 and system claim 17 since the recited apparatus and system would perform the claimed method steps.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 2-4, 12-14, 23-24, 27-28, 33, 36-38, 40, 43-45 are rejected under 35 U.S.C. 103(a) as being obvious over Bertonis et al (6,625,222 hereinafter Bertonis) in view of Applicants own admittance or Cheah (6,674,409).

Regarding claims 2-4, 23-24, 33, 36-38, 40 and 44-45. Bertonis does not show using 20 dB.

However, Applicants openly admit that FCC standards have been set for signal to noise and distortion ratio when operating in the MHz channel spacing (see 20 dB in paragraph 0006 of Applicants current invention or column 3 lines 31-40 in Cheah).

It would have been obvious for any one of ordinary skill in the art at the time of invention to utilize standards that have already been established as evident by Applicants own admittance.

Regarding claims 12-14, 27-28 and 43. Bertonis does not list approximate frequencies.

However, Applicants openly admit that FCC standards have been set for signal to noise and distortion ratio when operating in the MHz channel spacing (see 20 dB in paragraph 0006 of Applicants current invention or column 3 lines 31-40 in Cheah).

Applicants openly admit that tuners (see figure 1 and paragraph 0022 of Applicants disclosure) already operate in frequency ranges of approximate 70 MHz to 130 MHz and other frequencies close to tuner (see 142 MHz in paragraph 0022 of Applicants specification).

It would have been obvious for any one of ordinary skill in the art at the time of invention to utilize standards that have already been established as evident by Applicants own admittance.

3. Claims 6-7, 9-10, 19, 21-22, 25, 29-32, 35, 41 and 47 are rejected under 35 U.S.C. 103(a) as being obvious over Bertonis et al (6,625,222 hereinafter Bertonis) in view of Rogers et al (6,681,103 hereinafter Rogers).

Regarding claims 6-7, 19, 21, 35, 41 and 47. Bertonis does not use the term "first order" in his specification. The Examiner also notes that "first order" is missing from Applicants specification.

Rogers also teaches an image reject filter (figure 1) having a filter network (see FILTER figure 1) coupled to said image reject mixer (see MIXER figure 1). Rogers improves on prior art (see figure 1) by using on-chip image rejection filter having LC components (col. 1 line 5 – col. 2 line 21). Rogers discloses that by using on-chip image filter to provide selective amplification of a signal at a desired frequency, to enable tuning of the resonant frequency, and to eliminate noise owing to the frequency selectivity of the tuned circuit (see figures 1-4, col. 3 lines 33-67, col. 4 line 66 – col. 5 line 33).

It would have been obvious for any one of ordinary skill in the art at the time of the invention to utilize the on-chip filter as taught by Rogers into the teachings of Bertonis in order to provide for selective amplification of a signal at a desired frequency

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while eliminating noise owing to the frequency selectivity of the tuned circuit as disclosed by Rogers.

Regarding claims 9-10, 22, 25. Bertonis does show IC technology being employed.

Rogers also teaches a image reject filter (figure 1) having a filter network (see FILTER figure 1) coupled to said image reject mixer (see MIXER figure 1). Rogers improves on prior art (see figure 1) by using on-chip image rejection filter having LC components (col. 1 line 5 – col. 2 line 21). Rogers discloses that by using on-chip image filter to provide selective amplification of a signal at a desired frequency, to enable tuning of the resonant frequency, and to eliminate noise owing to the frequency selectivity of the tuned circuit (see figures 1-4, col. 3 lines 33-67, col. 4 line 66 – col. 5 line 33).

It would have been obvious for any one of ordinary skill in the art at the time of the invention to utilize the on-chip filter as taught by Rogers into the teachings of Bertonis in order to provide for selective amplification of a signal at a desired frequency while eliminating noise owing to the frequency selectivity of the tuned circuit as disclosed by Rogers.

Regarding claim 29. Bertonis teaches a data channel tuner for tuning a particular signal from a signal stream (title, abstract, figure 8) comprising:



Providing the signal stream having a first signal and a second signal ... (see figure 8 wherein LNA generates signal plus noise before passing to an adaptive Image Reject Mixer 105); and

Mixing the signal stream using an image reject mixer ... (see Adaptive Image Reject Mixer 105 figure 8).

Bertonis does not elaborate on signal energy of first and second signals.

Rogers also teaches an image reject filter (figure 1) having a filter network (see FILTER figure 1) coupled to said image reject mixer (see MIXER figure 1). Rogers improves on prior art (see figure 1) by using on-chip image rejection filter having LC components (col. 1 line 5 – col. 2 line 21). Rogers discloses that by using on-chip image filter to provide selective amplification of a signal at a desired frequency, to enable tuning of the resonant frequency, and to eliminate noise owing to the frequency selectivity of the tuned circuit (see figures 1-4, col. 3 lines 33-67, col. 4 line 66 – col. 5 line 33).

It would have been obvious for any one of ordinary skill in the art at the time of the invention to utilize the on-chip filter as taught by Rogers into the teachings of Bertonis in order to provide for selective amplification of a signal at a desired frequency while eliminating noise owing to the frequency selectivity of the tuned circuit as disclosed by Rogers.

Regarding claim 30. Bertonis teaches data channel comprises a forward data channel and image frequency signal energy comprises a forward access terminal signal (see col. 4 lines 25-67 wherein standard cable modem used).

Regarding claims 31-32. Bertonis does not use the term "first order" in his specification. The Examiner also notes that "first order" is missing from Applicants specification.

Rogers also teaches an image reject filter (figure 1) having a filter network (see FILTER figure 1) coupled to said image reject mixer (see MIXER figure 1). Rogers improves on prior art (see figure 1) by using on-chip image rejection filter having LC components (col. 1 line 5 – col. 2 line 21). Rogers discloses that by using on-chip image filter to provide selective amplification of a signal at a desired frequency, to enable tuning of the resonant frequency, and to eliminate noise owing to the frequency selectivity of the tuned circuit (see figures 1-4, col. 3 lines 33-67, col. 4 line 66 – col. 5 line 33).

It would have been obvious for any one of ordinary skill in the art at the time of the invention to utilize the on-chip filter as taught by Rogers into the teachings of Bertonis in order to provide for selective amplification of a signal at a desired frequency while eliminating noise owing to the frequency selectivity of the tuned circuit as disclosed by Rogers.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being obvious over Bertonis et al (6,625,222 hereinafter Bertonis) in view of Rogers et al (6,681,103 hereinafter Rogers) further in view of Applicants own admittance or Cheah (6,674,409).

Regarding claim 20. Bertonis in view of Rogers fail to show using 20 dB.

However, Applicants openly admit that FCC standards have been set for signal to noise and distortion ratio when operating in the MHz channel spacing (see 20 dB in paragraph 0006 of Applicants current invention or column 3 lines 31-40 in Cheah).

It would have been obvious for any one of ordinary skill in the art at the time of invention to utilize standards that have already been established as evident by Applicants own admittance.

### ***Response to Arguments***

5. Applicant's arguments filed 5/31/06 have been fully considered but they are not persuasive.

a) Regarding Applicants general remark on page 10, paper dated 5/31/05, second paragraph wherein Applicants appear to redefine "data channel" to be some sort of standard for down conversion.

The Examiner notes that Applicants own specification disclose that FCC standards have been set for signal to noise and distortion ratio when operating in the MHz channel spacing (see 20 dB in paragraph 0006 of Applicants current invention or column 3 lines 31-40 in Cheah).

b) Next, Applicants contend that Bertonis uses frequencies that are spread far apart (see bottom of page 10, paper dated 5/31/06).

The Examiner notes that Bertonis teaches that Image and desired signals are closely (i.e. 10%) spaced (col. 2 lines 5-8).

Furthermore, the Examiner notes that Applicants independent claims are extremely vague in nature and Applicants admitted prior art (i.e. figures 1 and 2) read on Applicants general claim language.

c) Next, Applicants generally argue that claim 17 requires “wherein a signal energy of said particular signal is substantially less than said additional signal energy” (see page 11, paper dated 5/31/06).

The Examiner is not sure what applicants are trying to say? Furthermore, FCC already has standards established for performance at 1 MHZ (see Applicants own admittance that FCC standards have been set for signal to noise and distortion radio when operating in the MHz channel spacing----in paragraph 0006 of Applicants current application or column 3 lines 31-40 in Cheah which is also assigned to Microtune and filed just a few days prior to Applicants current application)). Furthermore, Applicants have not defined what is meant by “wherein a signal energy of said particular signal is substantially less than said additional signal energy”.

d) In summation, Applicants independent claims are extremely general in nature and Bertoni's figure 8 looks just like Applicants figure 3. In fact, Applicants general claim language when drawn in block diagram form would look like Applicants figure 1A (which is already labeled as PRIOR ART by Applicant).

e) Applicants skip the Examiner's rejection for claims 6-7, 9-10, 19, 21-22, 25, 31-32, 35, 41 and 47 wherein Rogers was used (see page 13, paper dated 5/31/06).

f) Applicants conclude by arguing that claim 20 depends upon claim 17 and should be allowed (see bottom of page 13).

The Examiner notes that claim 20 depends from claim 19 which is clearly met by Bertonis in view of Rogers (see Examiners rejection listed above).

***Conclusion***

**6. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor, telephone number (571) 272-7509, who is available Monday-Thursday, 6:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost, can be reached at (571) 272-7872. The central facsimile phone number for this group is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Centralized Delivery Policy: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the central fax number (571-273-8300).

Barry W. Taylor  
Art Unit 2617



BARRY TAYLOR  
PRIMARY EXAMINER